

RAW SEQUENCE LISTING

The Biotechnology Systems Branch of the Scientific and Technical
Information Center (STIC) no errors detected.

Application Serial Number: 10/642,248B
Source: 1FW/b
Date Processed by STIC: 2/15/07

ENTERED



IFW16

RAW SEQUENCE LISTING

DATE: 02/15/2007

PATENT APPLICATION: US/10/642,248B

TIME: 16:44:31

Input Set : N:\Crf4\02122007\K642248MOD.raw

Output Set : N:\CRF4\02152007\J642248B.raw

C--> 1 <110> APPLICANT: DeAngelis, Paul
2 Jing, Wei
3 <120> TITLE OF INVENTION: TARGETED GLYCOSAMINOGLYCAN POLYMERS BY POLYMER GRAFTING AND
4 METHODS OF MAKING AND USING SAME
5 <130> FILE REFERENCE: 3554.097
6 <140> CURRENT APPLICATION NUMBER: US/10/642,248B
7 <141> CURRENT FILING DATE: 2003-08-15
8 <150> PRIOR APPLICATION NUMBER: 60/404,356
9 <151> PRIOR FILING DATE: 2002-08-16
10 <150> PRIOR APPLICATION NUMBER: 60/479,432
11 <151> PRIOR FILING DATE: 2003-06-18
12 <150> PRIOR APPLICATION NUMBER: 60/491,362
13 <151> PRIOR FILING DATE: 2003-07-31
14 <150> PRIOR APPLICATION NUMBER: 10/195,908
15 <151> PRIOR FILING DATE: 2002-07-15
16 <150> PRIOR APPLICATION NUMBER: 09/437,277
17 <151> PRIOR FILING DATE: 1999-11-01
18 <150> PRIOR APPLICATION NUMBER: 60/107,929
19 <151> PRIOR FILING DATE: 1998-11-11
20 <150> PRIOR APPLICATION NUMBER: 09/283,402
21 <151> PRIOR FILING DATE: 1999-04-01
22 <150> PRIOR APPLICATION NUMBER: 60/080,414
23 <151> PRIOR FILING DATE: 1998-04-02
24 <150> PRIOR APPLICATION NUMBER: 09/842,484
25 <151> PRIOR FILING DATE: 2001-04-25
26 <150> PRIOR APPLICATION NUMBER: 60/199,538
27 <151> PRIOR FILING DATE: 2000-04-25
28 <150> PRIOR APPLICATION NUMBER: 10/142,143
29 <151> PRIOR FILING DATE: 2002-05-08
30 <150> PRIOR APPLICATION NUMBER: 60/289,554
31 <151> PRIOR FILING DATE: 2001-05-08
32 <160> NUMBER OF SEQ ID NOS: 85
33 <170> SOFTWARE: PatentIn version 3.3
35 <210> SEQ ID NO: 1
36 <211> LENGTH: 2920
37 <212> TYPE: DNA
38 <213> ORGANISM: Pasteurella multocida
39 <400> SEQUENCE: 1
40 atgaatacat tatcacaagc aataaaagca tataacagca atgactatca attagcactc 60
41 aaattattttg aaaagtcggc ggaaatctat ggacggaaaa ttgttgaatt tcaaattacc 120
42 aaatgcaaag aaaaactctc agcacatcct tctgttaatt cagcacatct ttctgtaa 180
43 aaagaagaaa aagtcaatgt ttgcgatagt ccgttagata ttgcaacaca actgttactt 240
44 tccaacgtaa aaaaattagt actttctgac tcggaaaaaa acacgttaaa aaataaatgg 300

see p. 6

RAW SEQUENCE LISTING

DATE: 02/15/2007

PATENT APPLICATION: US/10/642,248B

TIME: 16:44:31

Input Set : N:\Cr4\02122007\K642248MOD.raw

Output Set: N:\CRF4\02152007\J642248B.raw

45	aaattgctca	ctgagaagaa	atctgaaaat	gcggaggtaa	gagcggtcgc	ccttgtacca	360
46	aaagattttc	ccaaagatct	ggtttttagcg	cctttacctg	atcatgttaa	tgattttaca	420
47	tggtacaaaa	agcgaaagaa	aagacttggc	ataaaacctg	aacatcaaca	tgttggctct	480
48	tctattatcg	ttacaacatt	caatcgacca	gcaattttat	cgattacatt	agcctgttta	540
49	gtaaaccaaa	aaacacatta	cccgtttgaa	gttatcgtga	cagatgatgg	tagtcaggaa	600
50	gatctatcac	cgatcattcg	ccaatatgaa	aataaattgg	atattcgcta	cgtcagacaa	660
51	aaagataacg	gttttcaagc	cagtgccgct	cggaaatagg	gattacgctt	agcaaaatat	720
52	gactttattg	gcttactcga	ctgtgatatg	gcgccaaatc	cattatgggt	tcattcttat	780
53	gttgacagagc	tattagaaga	tgatgattta	acaatcattg	gtccaagaaa	atacatcgat	840
54	acacaacata	ttgacccaaa	agacttctta	aataacgcga	gtttgcttga	atcattacca	900
55	gaagtgaaaa	ccaataatag	tgttgccgca	aaaggggaag	gaacagtttc	tctggattgg	960
56	cgcttagaac	aattcgaaaa	aacagaaaat	ctccgcttat	ccgattcgcc	tttccgtttt	1020
57	tttgcggcgg	gtaatgttgc	tttcgctaaa	aaatggctaa	ataaatccgg	tttctttgat	1080
58	gaggaattta	atcactgggg	tggaagaagat	gtggaatttg	gatatcgctt	attccgttac	1140
59	ggtagtttct	ttaaaactat	tgatggcatt	atggcctacc	atcaagagcc	accaggtaaa	1200
60	gaaaatgaaa	ccgatcgtga	agcgggaaaa	aataattacgc	tcgatattat	gagagaaaaag	1260
61	gtcccttata	tctatagaaa	acttttacca	atagaagatt	cgcatatcaa	tagagtacct	1320
62	ttagtttcaa	tttatatccc	agcttataac	tgtgcaaact	atattcaacg	ttgcgtagat	1380
63	agtgcactga	atcagactgt	tgttgatctc	gaggtttgta	tttgtaacga	tggttcaaca	1440
64	gataatacct	tagaagtgat	caataagctt	tatggtaata	atcctagggg	acgcatcatg	1500
65	tctaaaccaa	atggcggaat	agcctcagca	tcaaatgcag	ccgtttcttt	tgctaaaggt	1560
66	tattacattg	ggcagttaga	ttcagatgat	tatcttgagc	ctgatgcagt	tgaactgtgt	1620
67	ttaaaagaat	ttttaaaaga	taaaacgcta	gcttgtgttt	ataccactaa	tagaaacgtc	1680
68	aatccggatg	gtagcttaat	cgctaattgg	tacaattggc	cagaattttc	acgagaaaaa	1740
69	ctcacaacgg	ctatgattgc	tcaccacttt	agaatgttca	cgattagagc	ttggcattta	1800
70	actgatggat	tcaatgaaaa	aattgaaaat	gccgtagact	atgacatgtt	cctcaaaactc	1860
71	agtgaagttg	gaaaatttaa	acatcttaat	aaaatctgct	ataaccgtgt	attacatggg	1920
72	gataacacat	caattaagaa	acttggcatt	caaaagaaaa	accattttgt	tgtagtcaat	1980
73	cagtcattaa	atagacaagg	cataacttat	tataattatg	acgaatttga	tgatttagat	2040
74	gaaagtagaa	agtatatttt	caataaaaacc	gctgaatatc	aagaagagat	tgatatctta	2100
75	aaagatatta	aaatcatcca	gaataaagat	gccaaaatcg	cagtcagtat	tttttatccc	2160
76	aatacattaa	acggcttagt	gaaaaaacta	aacaatatta	ttgaatataa	taaaaatata	2220
77	ttcgttattg	ttctacatgt	tgataagaat	catcttacac	cagatatcaa	aaaagaaata	2280
78	ctagccttct	atcataaaca	tcaagtgaat	attttactaa	ataatgatat	ctcatattac	2340
79	acgagtaata	gattaataaa	aactgaggcg	catttaagta	atattaataa	attaagtcag	2400
80	ttaaatctaa	attgtgaata	catcattttt	gataatcatg	acagcctatt	cgttaaaaat	2460
81	gacagctatg	cttatatgaa	aaaatatgat	gtcggcatga	atttctcagc	attaacacat	2520
82	gattggatcg	agaaaatcaa	tgcgcatcca	ccatttaaaa	agctcattaa	aacttatttt	2580
83	aatgacaatg	acttaaaaag	tatgaatgtg	aaaggggcat	cacaagggtat	gtttatgacg	2640
84	tatgcgctag	cgcatgagct	tctgacgatt	attaaagaag	tcatcacatc	ttgccagtca	2700
85	attgatagtg	tgccagaata	taacactgag	gatattttgg	tccaatttgc	acttttaatc	2760
86	ttagaaaaga	aaaccggcca	tgtatttaat	aaaacatcga	ccctgactta	tatgccttgg	2820
87	gaacgaaaat	tacaatggac	aaatgaacaa	attgaaagtg	caaaaagagg	agaaaatata	2880
88	cctgttaaca	agttcattat	taatagtata	actctataaa			2920
90	<210>	SEQ ID NO: 2					
91	<211>	LENGTH: 972					
92	<212>	TYPE: PRT					
93	<213>	ORGANISM: Pasteurella multocida					
94	<400>	SEQUENCE: 2					

RAW SEQUENCE LISTING

DATE: 02/15/2007

PATENT APPLICATION: US/10/642,248B

TIME: 16:44:31

Input Set : N:\Crf4\02122007\K642248MOD.raw

Output Set: N:\CRF4\02152007\J642248B.raw

```

95 Met Asn Thr Leu Ser Gln Ala Ile Lys Ala Tyr Asn Ser Asn Asp Tyr
96 1 5 10 15
97 Gln Leu Ala Leu Lys Leu Phe Glu Lys Ser Ala Glu Ile Tyr Gly Arg
98 20 25 30
99 Lys Ile Val Glu Phe Gln Ile Thr Lys Cys Lys Glu Lys Leu Ser Ala
100 35 40 45
101 His Pro Ser Val Asn Ser Ala His Leu Ser Val Asn Lys Glu Glu Lys
102 50 55 60
103 Val Asn Val Cys Asp Ser Pro Leu Asp Ile Ala Thr Gln Leu Leu Leu
104 65 70 75 80
105 Ser Asn Val Lys Lys Leu Val Leu Ser Asp Ser Glu Lys Asn Thr Leu
106 85 90 95
107 Lys Asn Lys Trp Lys Leu Leu Thr Glu Lys Lys Ser Glu Asn Ala Glu
108 100 105 110
109 Val Arg Ala Val Ala Leu Val Pro Lys Asp Phe Pro Lys Asp Leu Val
110 115 120 125
111 Leu Ala Pro Leu Pro Asp His Val Asn Asp Phe Thr Trp Tyr Lys Lys
112 130 135 140
113 Arg Lys Lys Arg Leu Gly Ile Lys Pro Glu His Gln His Val Gly Leu
114 145 150 155 160
115 Ser Ile Ile Val Thr Thr Phe Asn Arg Pro Ala Ile Leu Ser Ile Thr
116 165 170 175
117 Leu Ala Cys Leu Val Asn Gln Lys Thr His Tyr Pro Phe Glu Val Ile
118 180 185 190
119 Val Thr Asp Asp Gly Ser Gln Glu Asp Leu Ser Pro Ile Arg Gln
120 195 200 205
121 Tyr Glu Asn Lys Leu Asp Ile Arg Tyr Val Arg Gln Lys Asp Asn Gly
122 210 215 220
123 Phe Gln Ala Ser Ala Ala Arg Asn Met Gly Leu Arg Leu Ala Lys Tyr
124 225 230 235 240
125 Asp Phe Ile Gly Leu Leu Asp Cys Asp Met Ala Pro Asn Pro Leu Trp
126 245 250 255
127 Val His Ser Tyr Val Ala Glu Leu Leu Glu Asp Asp Asp Leu Thr Ile
128 260 265 270
129 Ile Gly Pro Arg Lys Tyr Ile Asp Thr Gln His Ile Asp Pro Lys Asp
130 275 280 285
131 Phe Leu Asn Asn Ala Ser Leu Leu Glu Ser Leu Pro Glu Val Lys Thr
132 290 295 300
133 Asn Asn Ser Val Ala Ala Lys Gly Glu Gly Thr Val Ser Leu Asp Trp
134 305 310 315 320
135 Arg Leu Glu Gln Phe Glu Lys Thr Glu Asn Leu Arg Leu Ser Asp Ser
136 325 330 335
137 Pro Phe Arg Phe Phe Ala Ala Gly Asn Val Ala Phe Ala Lys Lys Trp
138 340 345 350
139 Leu Asn Lys Ser Gly Phe Phe Asp Glu Glu Phe Asn His Trp Gly Gly
140 355 360 365
141 Glu Asp Val Glu Phe Gly Tyr Arg Leu Phe Arg Tyr Gly Ser Phe Phe
142 370 375 380
143 Lys Thr Ile Asp Gly Ile Met Ala Tyr His Gln Glu Pro Pro Gly Lys

```

RAW SEQUENCE LISTING

DATE: 02/15/2007

PATENT APPLICATION: US/10/642,248B

TIME: 16:44:31

Input Set : N:\Cr4\02122007\K642248MOD.raw

Output Set: N:\CRF4\02152007\J642248B.raw

144	385	390	395	400
145	Glu Asn Glu Thr Asp Arg Glu Ala Gly Lys Asn Ile Thr Leu Asp Ile			
146		405	410	415
147	Met Arg Glu Lys Val Pro Tyr Ile Tyr Arg Lys Leu Leu Pro Ile Glu			
148		420	425	430
149	Asp Ser His Ile Asn Arg Val Pro Leu Val Ser Ile Tyr Ile Pro Ala			
150		435	440	445
151	Tyr Asn Cys Ala Asn Tyr Ile Gln Arg Cys Val Asp Ser Ala Leu Asn			
152		450	455	460
153	Gln Thr Val Val Asp Leu Glu Val Cys Ile Cys Asn Asp Gly Ser Thr			
154	465	470	475	480
155	Asp Asn Thr Leu Glu Val Ile Asn Lys Leu Tyr Gly Asn Asn Pro Arg			
156		485	490	495
157	Val Arg Ile Met Ser Lys Pro Asn Gly Gly Ile Ala Ser Ala Ser Asn			
158		500	505	510
159	Ala Ala Val Ser Phe Ala Lys Gly Tyr Tyr Ile Gly Gln Leu Asp Ser			
160		515	520	525
161	Asp Asp Tyr Leu Glu Pro Asp Ala Val Glu Leu Cys Leu Lys Glu Phe			
162		530	535	540
163	Leu Lys Asp Lys Thr Leu Ala Cys Val Tyr Thr Thr Asn Arg Asn Val			
164	545	550	555	560
165	Asn Pro Asp Gly Ser Leu Ile Ala Asn Gly Tyr Asn Trp Pro Glu Phe			
166		565	570	575
167	Ser Arg Glu Lys Leu Thr Thr Ala Met Ile Ala His His Phe Arg Met			
168		580	585	590
169	Phe Thr Ile Arg Ala Trp His Leu Thr Asp Gly Phe Asn Glu Lys Ile			
170		595	600	605
171	Glu Asn Ala Val Asp Tyr Asp Met Phe Leu Lys Leu Ser Glu Val Gly			
172		610	615	620
173	Lys Phe Lys His Leu Asn Lys Ile Cys Tyr Asn Arg Val Leu His Gly			
174	625	630	635	640
175	Asp Asn Thr Ser Ile Lys Lys Leu Gly Ile Gln Lys Lys Asn His Phe			
176		645	650	655
177	Val Val Val Asn Gln Ser Leu Asn Arg Gln Gly Ile Thr Tyr Tyr Asn			
178		660	665	670
179	Tyr Asp Glu Phe Asp Asp Leu Asp Glu Ser Arg Lys Tyr Ile Phe Asn			
180		675	680	685
181	Lys Thr Ala Glu Tyr Gln Glu Glu Ile Asp Ile Leu Lys Asp Ile Lys			
182		690	695	700
183	Ile Ile Gln Asn Lys Asp Ala Lys Ile Ala Val Ser Ile Phe Tyr Pro			
184	705	710	715	720
185	Asn Thr Leu Asn Gly Leu Val Lys Lys Leu Asn Asn Ile Ile Glu Tyr			
186		725	730	735
187	Asn Lys Asn Ile Phe Val Ile Val Leu His Val Asp Lys Asn His Leu			
188		740	745	750
189	Thr Pro Asp Ile Lys Lys Glu Ile Leu Ala Phe Tyr His Lys His Gln			
190		755	760	765
191	Val Asn Ile Leu Leu Asn Asn Asp Ile Ser Tyr Tyr Thr Ser Asn Arg			
192		770	775	780

RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/642,248B

DATE: 02/15/2007

TIME: 16:44:31

Input Set : N:\Crf4\02122007\K642248MOD.raw

Output Set: N:\CRF4\02152007\J642248B.raw

193	Leu Ile Lys Thr Glu Ala His Leu Ser Asn Ile Asn Lys Leu Ser Gln	
194	785	790 795 800
195	Leu Asn Leu Asn Cys Glu Tyr Ile Ile Phe Asp Asn His Asp Ser Leu	
196		805 810 815
197	Phe Val Lys Asn Asp Ser Tyr Ala Tyr Met Lys Lys Tyr Asp Val Gly	
198		820 825 830
199	Met Asn Phe Ser Ala Leu Thr His Asp Trp Ile Glu Lys Ile Asn Ala	
200		835 840 845
201	His Pro Pro Phe Lys Lys Leu Ile Lys Thr Tyr Phe Asn Asp Asn Asp	
202		850 855 860
203	Leu Lys Ser Met Asn Val Lys Gly Ala Ser Gln Gly Met Phe Met Thr	
204		865 870 875 880
205	Tyr Ala Leu Ala His Glu Leu Leu Thr Ile Ile Lys Glu Val Ile Thr	
206		885 890 895
207	Ser Cys Gln Ser Ile Asp Ser Val Pro Glu Tyr Asn Thr Glu Asp Ile	
208		900 905 910
209	Trp Phe Gln Phe Ala Leu Leu Ile Leu Glu Lys Lys Thr Gly His Val	
210		915 920 925
211	Phe Asn Lys Thr Ser Thr Leu Thr Tyr Met Pro Trp Glu Arg Lys Leu	
212		930 935 940
213	Gln Trp Thr Asn Glu Gln Ile Glu Ser Ala Lys Arg Gly Glu Asn Ile	
214		945 950 955 960
215	Pro Val Asn Lys Phe Ile Ile Asn Ser Ile Thr Leu	
216		965 970
218	<210> SEQ ID NO: 3	
219	<211> LENGTH: 2979	
220	<212> TYPE: DNA	
221	<213> ORGANISM: Pasteurella multocida	
222	<400> SEQUENCE: 3	
223	ttataaactg attaaagaag gtaaacgatt caagcaaggt taatttttaa aggaaagaaa	60
224	atgaatacat tatcacaagc aataaaagca tataacagca atgactatga attagcactc	120
225	aaattatttg agaagtctgc tgaaacctac gggcgaaaaa tcgttgaatt ccaaattatc	180
226	aaatgtaaag aaaaactctc gaccaattct tatgtaagtg aagataaaaa aaacagtgtt	240
227	tgcgatagct cattagatat cgcaacacag ctcttacttt ccaacgtaaa aaaattaact	300
228	ctatccgaat cagaaaaaaa cagtttaaaa aataaatgga aatctatcac tgggaaaaaa	360
229	tcggagaacg cagaaatcag aaaggtggaa ctagtaccga aagattttcc taaagatcct	420
230	gttcttgctc cattgccaga tcatgttaat gattttacat ggtacaaaaa tcgaaaaaaa	480
231	agcttaggta taaagcctgt aaataagaat atcgggtcttt ctattattat tcctacattt	540
232	aatcgtagcc gtattttaga tataacgtta gcctgttttg tcaatcagaa aacaaactac	600
233	ccatttgaaag tcgttggtgc agatgatggg agtaaggaaa acttacttac cattgtgcaa	660
234	aaatacgaac aaaaacttga cataaagtat gtaagacaaa aagattatgg atatcaattg	720
235	tgtgcagtca gaaacttagg tttacgtaca gcaaagtatg attttgtctc gattctagac	780
236	tgcgatatgg caccacaaca attatgggtt cattcttata ttacagaact attagaagac	840
237	aatgatattg ttttaattgg acctagaaaa tatgtggata ctcataatat taccgcagaa	900
238	caattcctta acgatccata tttaatagaa tcactacctg aaaccgctac aaataacaat	960
239	ccttcgatta catcaaaagg aaatatatcg ttggattgga gattagaaca tttcaaaaaa	1020
240	accgataatc tacgtctatg tgattctccg tttcgttatt ttagttgagg taatgttgca	1080
241	ttttctaaag aatggctaaa taaagtaggt tggttcgatg aagaatttaa tcattggggg	1140
242	ggcgaagatg tagaatttgg ttacagatta tttgccaag gctgtttttt cagagtaatt	1200

RAW SEQUENCE LISTING ERROR SUMMARY
PATENT APPLICATION: US/10/642,248B

DATE: 02/15/2007
TIME: 16:44:32

Input Set : N:\Crf4\02122007\K642248MOD.raw
Output Set: N:\CRF4\02152007\J642248B.raw

Please Note:

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:58; N Pos. 9,12,18,24,27

Seq#:59; N Pos. 7,10,16,22,25

Seq#:67; Xaa Pos. 4,6,8,9,10,11,14,15,16,18,19,20,21,22,23,24,25,28,29,30

Seq#:67; Xaa Pos. 31,32,34,35,36,37,38,39,40,42,44,46,47,48,49,50,51,52,53

Seq#:67; Xaa Pos. 54,55,56,57,58,59,60,61,65,68,69,71,75

Seq#:68; Xaa Pos. 1,3,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,29

Seq#:68; Xaa Pos. 32,35,36,37,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53

Seq#:68; Xaa Pos. 54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72

Seq#:68; Xaa Pos. 73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91

Seq#:68; Xaa Pos. 92,93,96

Seq#:83; Xaa Pos. 12,20,30

Invalid Line Length:

The rules require that a line not exceed 72 characters in length. This includes spaces.

Seq#:1; Line(s) 3

Seq#:25; Line(s) 1241

Seq#:68; Line(s) 3008,3012,3033

VERIFICATION SUMMARY

DATE: 02/15/2007

PATENT APPLICATION: US/10/642,248B

TIME: 16:44:32

Input Set : N:\Cr4\02122007\K642248MOD.raw

Output Set: N:\CRF4\02152007\J642248B.raw

L:6 M:270 C: Current Application Number differs, Replaced Current Application Number

L:2435 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:58 after pos.:0

L:2464 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:59 after pos.:0

L:2976 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:67 after pos.:0

M:341 Repeated in SeqNo=67

L:3040 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:68 after pos.:0

M:341 Repeated in SeqNo=68

L:3724 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:83 after pos.:0

M:341 Repeated in SeqNo=83